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AUTHOR	Murtonen, Mari
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ABSTRACT

This study aimed to determine whether different orientations toward qualitative and quantitative methods can be found among students. Data were collected during 3 years from different research methodology course students. There were 195 Finnish students and 122 U.S. students who answered a questionnaire about the appreciation of research methods and readiness to use them and the feeling of difficulty in quantitative methods studies. Findings show a dichotomy in some students' views of qualitative and quantitative methods. In both countries there was a group that was very negative toward quantitative methods and highly positive about qualitative methods. There was also a group in both countries that preferred quantitative methods over qualitative methods. Differences occurred both in appreciation of methods and in willingness to use them. Students appear to "choose a side" in favor of one approach or the other. (SLD)

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University Students' Orientation to Qualitative and Quantitative Research Methods

Mari Murtonen

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University students' orientations to qualitative and quantitative research methods

Mari Murtonen
Department of Education, 20014 University of Turku, Finland
mari.murtonen@utu.fi , http://users.utu.fi/marimur/

1. Introduction

Research methodology courses of undergraduate and postgraduate programmes in social sciences in university continuously cause problems for many students (Forte, 1995; Hauff & Fogarty, 1996; Lehtinen & Rui, 1995; Pretorius & Norman, 1992; Rosenthal & Wilson, 1992). Many students have problems especially with quantitative methods and statistics. This was also found in a study by Murtonen and Lehtinen (in press) conducted on students in social sciences. When asked to rate different academic subjects on the basis of their difficulty, it was found that the students frequently considered their research methodology courses, especially quantitative methods and statistics, more difficult than their major subject studies.

In our earlier work we got some evidence (Murtonen & Lehtinen, in press) that some master students in social sciences do make a difference between qualitative and quantitative in terms of how they prefer them when selecting courses or conducting their course works and theses. They either described an aversion toward one method or they just told they experience themselves as a specific kind of person, for example as a qualitatively oriented person. In this paper we aim at studying whether different orientations toward qualitative and quantitative methods can be found among students.

We also wanted to find out whether students were ready to use qualitative and quantitative methods in their own research and was the readiness related to the appreciation of the methods? We also studied if different kinds of subgroups could be found among students in their appreciation of methods and readiness to use them, i.e. did students have different "personal research preferences/orientations"? To find out if these "research orientations" had connections to other factors we compared the identified groups in their difficulties experienced in quantitative methods courses. Differences between majors and study years were also examined, as well as the question whether conceptions change during one course.

Method

Subjects. The data were collected during three years from different research methodology course students. There were altogether 195 Finnish students and 122 US students, in sum *N* 318. All disciplined had their own methodology courses provided by their own faculties. The courses were about quantitative methods, except the first measurement years' sociology group, which had a course on qualitative methods. All Finnish students were approximately third study year students,

except psychology students, who had their course on their first study year. US psychology students were mainly third year students.

Materials and procedures. A questionnaire was used which consisted of two sections of statements. The first section consisted of 8 statements concerning the appreciation of theoretical-philosophical, empirical, qualitative and quantitative methods and readiness to use qualitative and quantitative methods. In the second section a total of 18 questions was used to measure the feeling of difficulty in quantitative method studies.

Results

Conceptions on research methodology

To study the students' views on research methods we presented them claims about different methods. The means and standard deviations for these statements concerning research methodological conceptions are shown in Table 1. Four of the eight statements were grouped into two sum variables on a theoretical basis. These sum variable means are shown with the statements in Table 1.

Table 1. The means and standard deviations for the statements concerning research methodological conceptions.

Statement	*M*	*SD*
The views of the most famous theoreticians are very important for this discipline (&) The most important findings in this discipline are gained with theoretical method		
Finland	2,86	,79
US	3,56	,71
The use of empirical methods is very important for this discipline (&) The most important findings in this discipline are gained with empirical method		
Finland	3,68	,76
US	4,05	,74
The most interesting findings in this discipline are gained with qualitative methods		
Finland	4,31	,62
US	3,57	,91
The most interesting findings in this discipline are gained with quantitative methods		
Finland	3,74	,91
US	3,47	,92
I would like to conduct a research of my own with qualitative methods		
Finland	4,19	,82
US	3,13	1,33
I would like to conduct a research of my own with quantitative methods		
Finland	3,36	1,09
US	3,16	1,32

In both countries empirical research methods were more appreciated than theoretical-philosophical methods (FIN: $t(193)=-9.03$, $p< .001$; US: $t(121)=-5.49$, $p< .001$). The US students appreciated both theoretical-philosophical ($t(316)=-7.99$, $p< .001$) and empirical methods ($t(314)=-4.31$, $p< .001$) more than the Finnish students.

The US students had no difference in qualitative and quantitative methods appreciation, or in the willingness to use either of the methods. The readiness to use both qualitative ($t(121)=4.07$, $p< .001$) and quantitative methods ($t(120)=2.82$, $p< .01$) was lower than appreciation of the same methods. The Finnish students also rated their readiness to use qualitative methods lower than their appreciation of the method ($t(194)=2.08$, $p< .05$) and similarly the readiness to use quantitative methods lower than their appreciation ($t(194)=4.91$, $p< .001$). What was most astonishing was the high appreciation of qualitative methods in comparison to quantitative methods ($t(194)=8.11$, $p< .001$) and the willingness to use qualitative methods in comparison to willingness to use quantitative methods ($t(194)=7.91$, $p< .001$).

Different groups on research methodological conceptions

We were interested to find out different student profiles in research methodological conceptions and readiness to use different methods. The Finnish subjects were clustered into four cluster groups and the US students in five cluster groups on the basis of the six methodological conception variables. The cluster solutions for both countries are shown in Figures 1 and 2.

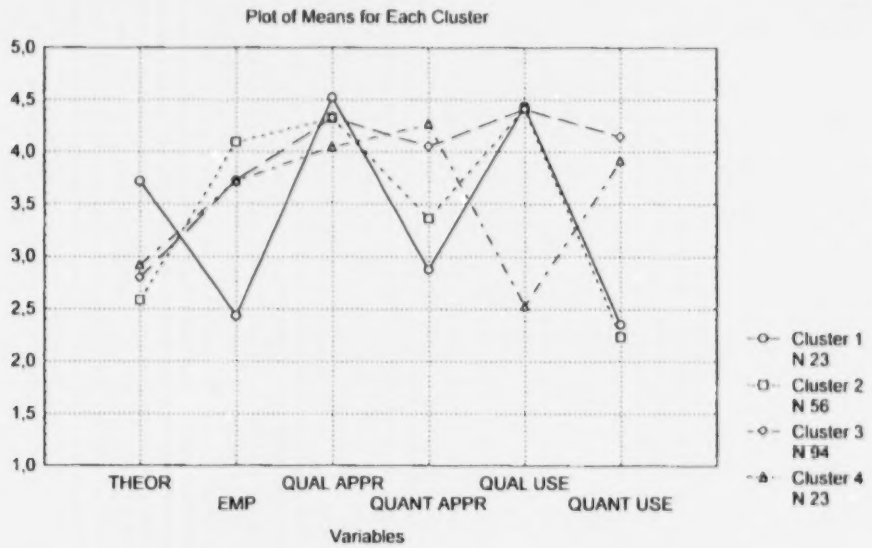

Figure 1. The Finnish cluster groups.
Note: The first two variables measured if the students appreciated theoretical-philosophical (THEOR) and empirical methods (EMP), the next two measured if students appreciated qualitative (QUAL APPR) and quantitative methods (QUANT APPR) and the last two measured if students were ready to use qualitative (QUAL USE) and quantitative (QUANT USE) methods in their own research.

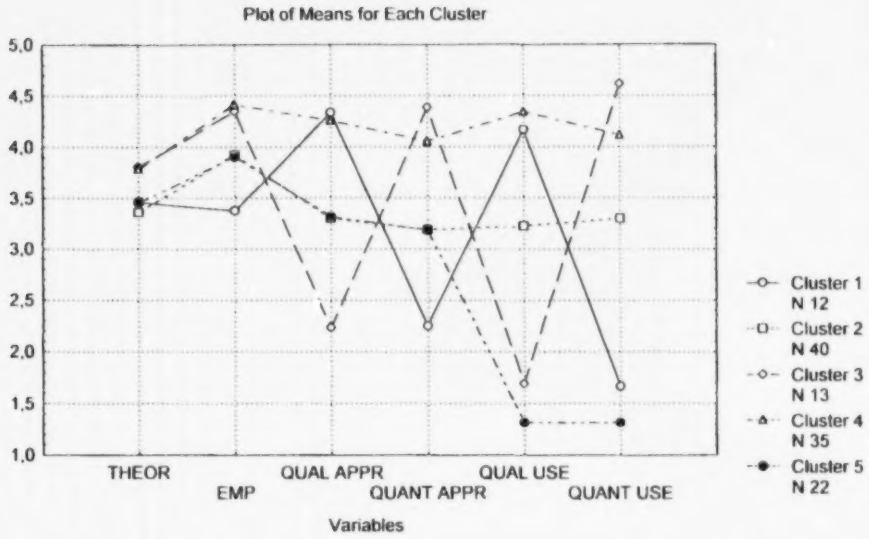

Figure 2. The US cluster groups.

The most interesting finding was group 1 in both countries. As hypothesised, there were in both countries a group of students who had an aversion toward quantitative methods. These students appreciated qualitative methods high (mean over 4) and they were ready to use qualitative methods in their own research. In opposite, they did not appreciate quantitative methods (mean below 3) and they did not want to use them in their own research. What was even more fascinating, these groups had a very different profile from that of the other groups in theoretical-philosophical and empirical methods appreciation. In the Finnish sample this was very obvious. In both theoretical-philosophical and empirical methods' appreciation cluster group 1 differed statistically very significantly in post hoc test from the other groups. The other groups appreciated empirical methods more than theoretical-philosophical ones, while group 1 had the opposite direction. In US students there was not so clear tendency as in the Finnish sample, but group 1 appreciated empirical methods statistically significantly less than the other groups.

An interesting group was also cluster group number 2 in the Finnish sample. They seemed to have an aversion toward quantitative methods, but they did not have a similar conception structure on theoretical-philosophical and empirical methods as group 1. Vice versa, they rated highest on empirical methods' appreciation. So, they had a high appreciation of empirical methods and an aversion toward quantitative methods. In the US sample a similar group could not be found. In the US sample group 5 had a moderate appreciation of qualitative and quantitative methods, but they had no readiness to use these methods by themselves. These psychology students may aim at a career where they know they will not need these skills and thus they have no interest in them. There was no similar group among the Finnish students; they seemed to either be very interested about everything (group 3), or choose "their side". The US students formed group number 2, which was moderately interested in all methods. A similar group cannot be found in the Finnish sample.

An opposite view to an aversion toward quantitative methods was held by the Finnish group number 4 and the US group number 3. They were very eager to use quantitative methods, but did not want to use qualitative methods. The Finnish students did appreciate both methods, but the US students had a very low appreciation of qualitative methods.

Cluster groups and difficulties experienced in quantitative methods studies

Difficulties experienced in research methodology were measured with a questionnaire that consisted of 18 questions measuring the feeling of difficulty in different areas of research methodology learning. The Cronbach's Alpha for these 18 questions was .81 for the Finnish sample and .91 for the US sample. The Finnish students (M 3,08 / SD .52) experienced more difficulties than the US students (M 2,58 / SD ,66) in the beginning of the courses, $t(292)=7,25$, $p < .001$.

The four Finnish cluster groups differed in their difficulties experienced, $F(3, 173)=7.28$, $p< .001$. The LSD post hoc test showed that group 2 ($M=3.33$, $SD=.43$), which had an aversion toward quantitative methods, but high appreciation of empirical methods, had more difficulties than the other groups. Group 3 ($M=3.04$, $SD=.52$) had more difficulties than group 4 ($M=2.79$, $SD=.47$), which was not ready to use qualitative methods, but was ready to use quantitative methods. Group 1 ($M=2.96$, $SD=.52$), which had an aversion toward quantitative methods and low appreciation of empirical methods, did not differ from groups 2 and 4.

The five US cluster groups reached only a statistically symptomatic difference, $F(4, 112)=2,13$, $p= .081$. Paired t-tests and LSD post hoc test both showed that group 1 differed statistically significantly from groups 2, 3 and 4. There were no differences between groups 2, 3, 4 and 5.

Conclusions

The results of this study show that a dichotomy can be found in some students' views on qualitative and quantitative methods. The cluster solution revealed groups that differed much from each other. In both countries there was a group which was very negative toward quantitative methods and highly positive toward qualitative methods. There was also a group in both countries that preferred quantitative methods over qualitative methods. The differences occurred both in appreciation and in readiness to use the methods by themselves. It thus seems that some students "choose their side" in favour of either method. It could be said that some students may have a more qualitatively or quantitatively directed research orientation.

One of our goals was to look at the relation between the concepts empirical, theoretical, qualitative and quantitative. A group was identified in both countries which had an aversion toward quantitative methods and which appreciated empirical methods less than other students did. On the basis of this observation we suggest that some students have a somehow different kind of conception of empirical methods from that of the other students. The difficulties experienced in the learning of quantitative methods were connected to low willingness to use quantitative methods in the students' own works and to low appreciation of quantitative methods.

References

Forte, J. (1995). Teaching statistics without sadistics. *Journal of Social Work Education, 31*(2), 204-308.

Hauff, H. M., & Fogarty, G. J. (1996). Analysing problem solving behaviour of successful and unsuccessful statistics students. *Instructional Science, 24*, 397-409.

Lehtinen, E. & Rui, E. (1995). Computer-supported complex learning: An environment for learning experimental methods and statistical inference. *Machine-Mediated Learning, 5*(3&4), 149-175.

Murtonen, M., & Lehtinen, E. (2003, in press). Difficulties experienced by education and sociology students in quantitative methods courses. *Studies in Higher Education, 28*(2).

Pretorius, T. B., & Norman, A. M. (1992). Psychometric data on the statistics anxiety scale for a sample of south african students. *Educational & Psychological Measurement, 52*(4), 933-937.

Rosenthal, B. C., & Wilson, W. C. (1992). Student factors affecting performance in an MSW research and statistics course. *Journal of Social Work Education, 28*(1), 77-85.

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Mari Murtonen	MARI MURTONEN / RESEARCHER	
Organization/Address: DEPARTMENT OF EDUCATION ASSISTENTINKATU 5 20014 UNIVERSITY OF TURKU FINLAND	Telephone: +358-2-333 8639	Fax: +358-2-333 8830
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